

**Amendments to the Drawings**

Attached amended drawing sheet 3 is identical in all respects to the sheet as originally filed, except in Figure 3 the angle  $\delta$  has been added.

**REMARKS**

Reconsideration of the issues raised in the above referenced Office Action is respectfully solicited.

Applicants appreciate the allowance of Claims 1-8 and the indication of allowable subject matter in Claims 16-20. Claim 15 has been amended to include the feature of dependent Claim 16 and thus is now believed allowable. Claims 17-20 now depend from Claim 15 and thus are also allowable.

Paragraph 1 of the Office Action suggests inserting the word "radially" into Claim 1, line 11. Applicants have not made this amendment as it does not appear necessary for an understanding of the claim.

The rejection of Claims 9-15 under 35 USC §102(b) as being anticipated by U.S. Patent No. 4 558 975 to Hale has been considered.

Claims 9-14 have been cancelled in favor of new Claims 21-23 which are believed allowable. Claim 15 has been amended to include the features of cancelled Claim 16. Therefore withdrawal of the rejection of claims under 35 USC §102(b) in view of Hale is respectfully requested.

New Claim 21 recites the angle  $\delta$  in describing the angle formed by the peeling section of the main cutting edge and the adjacent secondary cutting edge enclosing an angle of  $180^\circ + \delta$ . Claim 21 also recites the angle  $\delta$  in defining the working section and central section enclosing a sweepback angle of  $180^\circ - \delta$ , wherein  $\delta$  is in the range of  $5^\circ$  to  $20^\circ$ .

Claim 21 includes no new matter. The feature of the working section and rectilinear peeling section enclosing an angle of  $95$  to  $110^\circ$  is set forth in the preliminary amendment to Claim 1. Further, the central section and the rectilinear working section enclosing a sweepback angle of  $160^\circ$  to  $175^\circ$  is disclosed in original Claim 6 and at page 3, lines 10-14, of the original specification. The angle value  $\delta$  is provided as a variable in the equations that merely restate the above angle ranges already disclosed in the specification and claims.

In view of the above, the additional text in the last paragraph of the specification, including the angle  $\delta$ , is clearly based on the original specification and the claims. The amendment reciting an angle range of  $95^\circ$  to  $110^\circ$  enclosing the sections 50, 52 is taken from Applicants' preliminary amendment to Claim 1. Finally, amended Figure 3 now simply labels the angle  $\delta$ , which is variable over the range from at least  $5^\circ$  to  $20^\circ$  as recited in the original specification and in the claims.

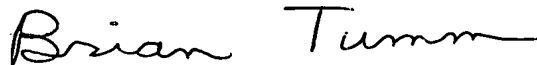
The above angle range of  $180^\circ + \delta$  and the angle range of  $180^\circ - \delta$  are accurate for values of  $\delta$  within the range  $5^\circ$  to  $20^\circ$  as the angle relationships result from the indexing capability including the  $90^\circ$  relationship between the four identical main cutting edges.

Returning to the applied prior art, the insert of Hale has the shape of a parallelogram which can be indexed (rotated) only by  $180^\circ$ , but not by  $90^\circ$  in the outer insert seat. This arrangement is disclosed at column 4, lines 7-12 of Hale. Since the insert seats of Hale are arranged mirror-symmetrically,  $90^\circ$  indexing can only be obtained by means of a change between the inner seat and outer seat of a drill bit.

For the above reasons, Claims 21-23 distinguish Hale and allowance thereof is respectfully requested.

Further and favorable reconsideration is respectfully solicited.

Respectfully submitted,



Brian R. Tumm

BRT/ad

FLYNN, THIEL, BOUTELL  
& TANIS, P.C.  
2026 Rambling Road  
Kalamazoo, MI 49008-1631  
Phone: (269) 381-1156  
Fax: (269) 381-5465

Dale H. Thiel  
David G. Boutell  
Terryence F. Chapman  
Mark L. Maki  
Liane L. Churney  
Brian R. Tumm  
Steven R. Thiel  
Donald J. Wallace  
Sidney B. Williams, Jr.

Reg. No. 24 323  
Reg. No. 25 072  
Reg. No. 32 549  
Reg. No. 36 589  
Reg. No. 40 694  
Reg. No. 36 328  
Reg. No. 53 685  
Reg. No. 43 977  
Reg. No. 24 949

Encl: Formal drawing sheet 3 - 1 page  
Postal Card